

# Biophysical Vulnerability Impact Assessment of Climate Change on Aquaculture Sector Development in Sarawak, Malaysia

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This study is an assessment of the impact of climate change on the biophysical vulnerability of aquaculture production in Sarawak. The relationship between change in risk factors with the total aquaculture production and farmer's income is identified. It utilizes data from the survey done on 249 aquaculture farmers in Sarawak, as well as secondary data gathered from various government reports. The multiple linear regressions results verify that the mean minimum temperature has a positive significant effect on freshwater ponds, while relative humidity has a negative significant effect on brackish water ponds. The total aquaculture area has a positive significant effect on brackish water ponds and cages. The results are further supported by the bivariate Spearman's rho correlation results, which show that the increasing number of climate change events will decrease the aquaculture production and income of aquaculture farmers. It is found that water quality disturbance is the main biophysical vulnerability aspect of the aquaculture sector in Sarawak due to the impact of climate change. The impact of climate change through biophysical changes affects the water quality and poses a considerable challenge to small aquaculture farmers in Sarawak. Various adaptation strategies are urgently needed to mitigate the possible outcome of climate change risks in future.

**JEL Classifications:** Q22, Q51, Q54

**Keywords:** Climate change in risks, impacts assessment, aquaculture production, aquaculture income.